March 17, 2006

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Dear Madams and Sirs:

This is the third formal letter from the Expert Review Panel (Panel) regarding Sound Transit's efforts to develop a package of proposed improvements, known as Sound Transit 2 (ST2), to be submitted to voters.

As you know, State law requires the creation of a panel of outside experts to provide independent review of any proposal from a regional high capacity transit system that includes voter-approved funding. The Expert Review Panel's charge, as defined by State law, is to review and comment on the underlying assumptions and methodologies being used by Sound Transit to create a potential funding request.

The Panel members are a distinguished group of individuals with a broad range of expertise. Their skills and knowledge include the following: project cost estimating, capital finance, ridership forecasting, modal analysis, legal and political architecture, environmental review, local design and constructability, and transit operations and maintenance. Each panel member has spent considerable time reviewing materials provided by Sound Transit and WSDOT. A list of Panel members is attached for your review.

Since our appointment in November 2004, the Panel met four times. The first two meetings focused on the update of the Regional Transit Long-Range Plan. The second two meetings focused on the development of the Sound Transit 2 (ST2) package of improvements.

At the most recent Panel meeting on January 5 – 6, 2006, the agenda focused on Sound Transit's work to identify specific projects for inclusion in the ST2 proposal. We received briefings on selected project scopes and cost estimates; Sound Transit's issue paper regarding conversion of bus rapid transit (BRT) to light rail in the I-90 corridor; the status of two WSDOT studies on the I-90 bridge; a report on the assessment of alternatives for providing high capacity transit service to First Hill; and a status report on the creation of the ST2 financial plan. In addition, the Panel reviewed data regarding a comparison of initial cost estimates for Sound Move (the first phase of Sound Transit construction currently underway) with actual costs.

The following provides a summary of the Panel's comments from the January meeting.

Initial ST2 Project List

Process Used to Develop ST2 Project List - The Panel was provided with the descriptions and initial cost estimates for 81 projects. We were informed that this list was developed by narrowing the collection of more than 400 potential projects identified in the Long-Range Plan.

The Panel was briefed on the processes used both inside and outside of Sound Transit to review the project scopes and budgets for the 81 projects. Sound Transit created a series of internal working teams (capital estimates, operating estimates, construction feasibility, project control, and finance) to review each project. Sound Transit staff members were asked to use their respective experiences with Sound Move projects to provide comments on the ST2 project scopes and budgets. Sound Transit also wanted to encourage review and discussion across disciplines, so a consolidated review team was created. The Panel understands that the external review process consisted of discussions with each of the sub-area forums and their technical committees, as well as numerous interactions with state, municipal and county officials, and business and civic organizations, in the three-county region.

Once the 81 projects were circulated for public review, the Sound Transit Board asked staff to begin to narrow the project list further. Board members identified four key evaluation criteria to accomplish that task: 1) ridership (using 1,000 riders per day as a minimum for further consideration); 2) cost; 3) risk avoidance; and 4) system integration (defined primarily as building on Sound Move). At the time of the January meeting, Sound Transit staff was recommending narrowing the potential ST2 project list by another twenty projects. Those

recommendations were discussed with each of the sub-area forums and the affected jurisdictions.

The Panel did not review the detailed scopes and budgets for the twenty projects dropped from further consideration. However, in general, the Panel believes the process used to create the list of 81 projects, and to begin narrowing that initial list is reasonable and appropriate for this stage of planning and decision making. The internal teams used by Sound Transit enable staff to utilize experience on Sound Move, and to create ownership that will ultimately have to construct and manage the projects if a ballot measure is successful. The Panel notes that the schedule for public review and comment was an accelerated one, with limited time for thorough discussion of the projects being set aside.

Lessons Learned From Sound Move - Panel members wanted to review Sound Transit's experience with Sound Move projects to assess how original cost estimates compared with actual construction costs. Such lessons could inform the work in preparing ST2 cost estimates. (The Panel has reviewed the draft methodology for ST2 capital cost estimating. Final comments will be provided when a final report is prepared.)

The Panel understands that Sound Transit has done a significant amount of analysis comparing variations in Sound Move actual cost with original estimates. As is not surprising for investments of this magnitude and with cost estimates developed so early in the project planning process, there were differences between the original planning estimates and the resulting final costs. There appear to be a variety of factors explaining these differences. Several of the key reasons include: 1) the initial Sound Move project scopes for many projects provided very limited detail on the exact nature of the project itself and as design work was completed cost estimates increased; 2) a number of projects took longer to accomplish than estimated, and the subsequent delays in schedule resulted in cost increases; 3) negotiations with third party entities resulted in increases in project budgets, 4) unexpected engineering challenges (e.g., soil conditions) created changes in work tasks, and 5) financial partnerships assumed in the Sound Move plan did not materialize.

We also examined the evolution of project cost estimates and budgets since 1995. The original budget estimates for each project were created as part of the Sound Move package submitted to the voters, and were in 1995 dollars. In 1998, Sound Transit converted all of their project cost estimates to Year-of-Expenditure (YOE) dollars, to reflect the anticipated schedule, and resulting inflation, for each project. As projects were designed, and engineering reached 30 percent completion, new baseline budgets were completed. In many cases, the baseline budgets were higher, in some cases considerably higher, than the original Sound Move estimates or the revised 1998 YOE estimates.

In planning for ST2, there is greater clarity about project scopes at this early stage of project cost estimating than existed in the Sound Move process. There has even been an attempt to describe what will <u>not</u> be included in the project scopes. Sound Transit also has nearly a decade of experience in constructing Sound Move projects to inform its cost estimating for ST2.

However, based on the lessons learned from Sound Move, it is important to note that for the most complex ST2 projects there continues to be considerable uncertainty around project cost estimates. The uncertainty has arisen from two factors: 1) the limited amount of engineering

design work that has been completed on many of the projects, and 2) the lack of agreements with third parties that will ultimately be required to construct many ST2 projects.

As mentioned above, many of the Sound Move project budgets increased significantly when project engineering and design reached the thirty percent (30 %) level. The Panel believes this uncertainty is particularly noteworthy for the complex, corridor projects being considered for ST2 funding. With respect to third party agreements, the Panel has previously suggested that Sound Transit pursue agreements on project scopes with agencies and jurisdictions involved in ST2 projects as early as possible. After reviewing the experience with Sound Move projects, the Panel continues to believe that Sound Transit's goal should be to make the third party agreements at this early stage of planning as formal as possible. For example, one way of doing this would be to secure approval of planning scopes, realizing that costs may change as engineering work proceeds. However, approval of scopes at this early stage of planning would insure that there is mutual understanding of project scopes.

Project Scopes and Budgets - Use of Contingencies - The Panel received a high-level review of several proposed ST2 project budgets and scopes, and an overview of how the costing methodology was applied to individual projects. Estimates for ST2 project costs are divided into three categories.

- Level 1 projects are large and complex, and have reached an engineering and design level of 30% completion or greater. There is only one project that satisfies this criterion--light rail expansion from the University of Washington to Northgate.
- Level 2 projects are also large, complex, fixed guideway extensions, where the level of engineering and design work is typically less than 5% complete. An example of a Level 2 project is the high capacity transit service in the I-90 corridor.
- Level 3 projects are stand-alone, smaller in scope, and similar to numerous existing Sound Move projects. Planning is typically at the conceptual analysis stage. These projects would include express bus or commuter rail projects such as park and ride lots, direct access ramps, and rail stations.

Two types of contingencies are applied to every project budget - allocated and unallocated. In addition, project or program reserves are applied. In effect, this creates three levels of contingency. Allocated contingencies are applied to specific line item expenses in each budget, such as right of way, construction, vehicles, etc. The level of contingency applied will vary, and will depend on the potential uncertainty or volatility for that particular category of expense. For Level 1 and 2 projects, allocated contingencies range from 5 to 50 % for different cost categories. For Level 3 projects, allocated contingencies range from 25 to 35 %. Unallocated contingencies are applied to the total project budget. For Level 1 and 2 projects, unallocated contingency ranges from 10 to 20 %. For Level 3 projects unallocated contingency is 10 %. Project reserves are included for all Level 1 and Level 2 project cost estimates. For Level 1 projects an additional 10% is added to the total estimated project cost to create the "high" end of the cost estimate range. For Level 2 projects an additional 15% is added. For Level 3 projects, a program reserve of 10% is added to the sum of all Express Bus project cost estimates and the sum of all Sounder project cost estimates.

Some Panel members stated that the size and layering of contingencies for Level 2 projects may be appropriate. There is still a considerable amount of uncertainty regarding the budgets for a number of Level 2 projects. However, Panel members raised questions about whether the amount of contingencies and reserves are appropriate for Level 1 and Level 3 projects. Level 1 projects should be at the stage of engineering and design (30%) where the risk of significant cost escalation is reduced. Level 3 projects should be ones the agency has experience with, and are smaller in scale, which should limit the risk. The Panel suggested further analysis of the appropriate level of contingencies, particularly for Level 1 and Level 3 projects, and anticipates conducting further discussion about contingencies at our next meeting.

Project Review – First Hill Alternatives - As mentioned in our last letter, Representative Murray had asked the Panel to explore the implications of the Sound Transit Board's decision to exclude the First Hill station from the light rail segment from downtown to the University of Washington. Representative Murray asked the Panel to review service options for the First Hill community that could be incorporated into ST2.

At the January meeting, the Panel received a briefing from Sound Transit staff regarding a variety of alternatives that had been studied to provide high capacity transit service to First Hill. The alternatives included relocation of the proposed First Hill light rail station; potential strategies to reduce construction risks; changing the depth of the proposed station; construction of a First Hill light rail spur; enhanced bus service; and creation of a streetcar line to service the area.

The Panel felt that the information presented was technically sound, the range of alternatives thorough, and was impressed with the amount of work and analysis that had been completed in a short period of time. It does not appear to the Panel that an alternative light rail station location can be found with an appropriate balance between the risk and costs associated with construction of the University Link segment and the need to provide high capacity transit to one of the region's densely populated residential and commercial centers. However, the Panel believes that the option of constructing a streetcar line to serve the First Hill community holds promise based on the initial analysis, and looks forward to reviewing Sound Transit's further assessment of that alternative.

Sound Transit staff outlined the schedule for further study of the streetcar alternative. The Panel understands that completion of conceptual engineering, and more refined cost estimates, will be developed by May. The Panel noted that this schedule is somewhat out of sync with the current schedule for Sound Transit Board decision-making on the ST2 package. In January the Panel was told that the Sound Transit Board will likely make decisions about a draft ST2 plan by the end of March, with final decisions by the end of June. If that continues to be the schedule, the Board will not have the results of the additional engineering work and the revised cost estimates until well after they have made initial decisions about a draft ST2 package.

Project Evaluation Criteria

In December, the Panel provided detailed comments about the project evaluation methodology proposed by Sound Transit staff. This methodology is meant to be used by the Board to make decisions about which set of projects to include in the ST2 package. In

January we were pleased to hear that many of those earlier comments had been incorporated into a revised evaluation methodology. However, the Panel continues to believe that if the evaluation methodology is going to be a truly useful tool for helping the Board make decisions, additional modifications will be required.

Currently there are 11 criteria that are proposed for use in making funding decisions. The risk with using such a large number of equally weighted criteria is that it becomes very difficult to distinguish between projects. Panel members suggested that Sound Transit use a tiered or weighted approach to the application of the criteria, encouraging Sound Transit to determine which of the criteria are most important in making decisions about ST2 projects, and carefully considering how the criteria will be used to compare one project against another.

It was also suggested that some measure of the impact on congestion might be appropriate for this analysis, especially at the corridor level. The use of this measure usually includes an analysis that describes the level of congestion in a particular corridor with and without the proposed investment, taking into account growth in travel. It is thus very likely that congestion levels would still increase even with transit investment due to this growth, however, the key question is, how much worse would it be without the new transit service?

Financial Planning

Available Revenue - In January, Sound Transit was in the early stages of preparing the financial analysis to support the ST2 projects. During the course of the January meeting, finance staff presented information regarding the historic performance of the two major revenue sources, retail sales tax and motor vehicle excise tax. Staff also provided the Panel with the initial revenue estimates for sales tax collections, assuming different levels of taxation, through the years 2020 and 2025.

Estimating the timing and amount of the proposed ST2 revenue sources will be an essential component of the analysis of financial capacity. Sound Transit's historic sales tax receipts have exceeded the original Sound Move forecast. However, the Panel notes that this is primarily because the actual tax base, and not growth rates, was greater than was originally assumed. When the Sound Move revenue forecasts were prepared, there were no historic data available which covered the exact area from which Sound Transit revenue is collected. The original forecasts predicted a smaller tax base in the region than actually exists. Therefore, Sound Transit was able to collect more dollars than were originally expected. Future performance of this revenue source will be dependent upon growth rates.

Historic motor vehicle excise taxes underperformed forecasts by a slight margin. Assumptions underlying various elements of the financial plan (i.e. revenue growth rates, inflation rates and borrowing rates) are being developed and will be applied once the ST2 project list has been developed. The Panel notes that the borrowing assumptions may present some future financial challenges to Sound Transit. The Panel notes that for Sound Move, borrowing rates through 2009 have been assumed at 5%, rising to 6% thereafter. This is somewhat on the low end of the normal range. In addition, the debt for Sound Move has been back loaded, with more principal amortized in the later years. If similar assumptions are made for ST2 it could result in higher overall interest rates and limit future flexibility. A more detailed review of the financial capacity will be undertaken by the Panel once Sound Transit presents the results of its financial modeling.

In advance of the Panel's review of the ST2 financial modeling, members did have several preliminary comments. There was discussion regarding the inflation estimates that will be used for real estate acquisition. Panel members suggested that it would be helpful to understand the rate at which real estate values have increased in each of the three counties, to determine if regional adjustments should be made in the real estate inflation factor. It was also suggested that Sound Transit compare its inflation rates for real estate acquisition with the rates being used by WSDOT, and that the two agencies share recent experience with respect to real estate costs. The Panel also suggested that when Sound Transit prepares its financial model, staff should conduct sensitivity analysis on construction inflation rates, and the anticipated cost of right-of-way.

Third Party Revenue Opportunities - In previous letters the Panel has stated that there are numerous examples nationwide of regional transportation agencies working with local and state government agencies, private developers, and local land owners through local improvement districts, to secure cost-sharing agreements or additional revenues for transit project developments. The Panel has been struck by the limited number of such agreements for the Sound Move plan, and has previously encouraged Sound Transit to pursue those opportunities at an early stage in the planning for ST2 projects.

At the January meeting several Panel members noted the large number of potential ST2 projects that involve Washington State Department of Transportation (WSDOT) right-of-way. The members encouraged Sound Transit and WSDOT to pursue cost-sharing strategies for those projects involving State right-of way, and to clarify the system of credits/debits regarding use and payment of WSDOT right-of-way. The Panel was told that Sound Transit pays the State for use of its right-of-way, but does not pay for the use of municipal or county rights-of-way. However, Sound Transit does pay cities and counties street use and utility fees. Panel members requested additional information about Sound Transit's expenses associated with the use of State and local government right-of-way. Panel members also encouraged Sound Transit staff to pursue communication with private developers regarding their potential interest in transit-related facilities such as stations.

The Panel is not suggesting that revenue estimates should be modified to include assumptions about additional public and private revenue sources. Rather, notes that successful pursuit of additional fund sources will require a concerted effort on the part of Sound Transit at the earliest stages of planning for ST2.

BRT/Convertible to Rail in the I-90 Corridor

The Panel was briefed on Sound Transit's study exploring the issues and costs associated with converting a bus rapid transit (BRT) system in the I-90 corridor to light rail. There was considerable discussion about the work required to convert from BRT to light rail, and the ability (or lack thereof) to construct BRT improvements in such a way as to significantly shorten the period of closure of the I-90 center roadway for that conversion. The Panel was told that both the light rail scenario and the BRT/convertible scenario (at the time of the conversion) will require closure of the center roadway for approximately two years.

Given the importance of this corridor for high capacity transit (HCT) and traffic flow throughout the region, the Panel wants to underscore the importance of the need to complete

construction and implementation of the I-90 R8-A alternative prior to construction of HCT on the center roadway. The Panel learned that both the light rail and BRT/convertible scenarios will require closure of the I-90 center roadway for approximately two years. Construction of the R8-A alternative would insure completion of the two planned HOV lanes on the outer roadways of I-90 prior to closing the center roadway to all traffic, including express bus and rideshare services. The Panel understands that approximately $40 million is needed to complete the funding package for the R8-A improvements. Resolution of that funding gap should be an important part of decision making regarding the timing of improvements to the I-90 corridor.

The Panel considers the forthcoming WSDOT traffic study to be an important source of information on the likely impacts of the light rail and BRT/convertible alternatives on the operations of the I-90 bridge. The WSDOT study should provide useful information on the likely impacts of transit alternatives on congestion, and the feasibility of introducing management lanes into the corridor. Until the Panel sees this information, we cannot at this time make a statement as to the adequacy of the information available to agency decision makers for making investment decisions in this corridor. In addition, although we are sure that institutional arrangements will be made, it is not clear to the Panel at this time who will actually make the final decision on any I-90 bridge modifications, although we are assuming that this decision rests with WSDOT (along with federal review given the Interstate designation).

Constructability on the Floating Bridge- At the January meeting, most of the Panel's attention regarding constructability was focused on the use of light rail on the I-90 Floating Bridge. Washington State Department of Transportation (WSDOT) staff made a presentation on the I-90 Bridge load test study conducted in the summer of 2005. After testing the bridge using trucks loaded to simulate the weight and operations of Light Rail cars, it was determined that the bridge, when modified to accommodate light rail trains, can withstand the load that would result from light rail operations. It should be noted, however, that the weight of the vehicles when combined with the lake effects associated with what is called a "one year storm event" is expected to stress the bridge to 98% of its structural capacity. This would occur even after modifications are made to lighten the bridge and utilize a lighter-than-specified rail.

Panel members believe that the combination of factors described above will result in the floating bridge being closed to light rail trains at a higher frequency than what currently occurs when weather conditions create hazardous operations, thus disrupting high capacity transit in the corridor. In the seventeen years since the "new" I-90 bridge has been operational WSDOT staff told the Panel that it has been closed twice. With the anticipated weight from light rail operations and the history of weather conditions WSDOT staff suggested it would be reasonable to assume approximately four closures during that same seventeen-year time period.

The Panel asked Sound Transit to provide all available information on the design of the rail on the floating bridge with particular emphasis on the design for the 150 foot transition structure (from shore to the floating bridge itself). Understanding that neither the Panel members nor Sound Transit staff are aware of any other examples in the world of a rail being placed on a floating bridge, the Panel suggests that more detailed analysis of the rail design and operation of the Light Rail (especially on the transition section) on the bridge needs to be completed. Panel members are not yet clear how well the light rail operations will work on

this segment of the corridor. The Panel understands that Sound Transit is preparing conceptual designs and design parameters for light rail operations on the I-90 Bridge. The Panel looks forward to further review of that material.

Conclusion

Based on the State Legislature's recent actions, we have postponed our anticipated mid-April meeting. We will meet again after a revised schedule for ST2 planning has been developed. When the Panel does meet again we anticipate focusing on final reviews of several methodology reports: ridership forecasting, capital and operating and maintenance cost estimating, and project evaluation. The Panel has previously provided comments on draft reports. In addition, we look forward to the opportunity to review the financial plan for ST2, the results of the WSDOT traffic study, and continue to review ST2 project scopes and budgets.

We have reported to you previously that staffs from both Sound Transit and WSDOT continue to be very responsive to our requests for information and forthcoming with their time and engagement with the Panel. This cooperation continues at a very high level.

Thank you for your continued interest in the Panel's work. We would be happy to answer any questions you may have.

Sincerely,

Michael Meyer

Michael Meyer
Chair, Expert Review Panel

cc. Expert Review Panel Members
Senator Mary Margaret Haugen
Bob Drewel, Executive Director, Puget Sound Regional Council

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